



DEPARTMENT OF
HIGHER EDUCATION &
WORKFORCE DEVELOPMENT

MISSOURI MIDDLE-SKILL

JOBS REPORT

2016-2026

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OVERVIEW

Middle-skill jobs are broadly defined as occupations that require some training after high school but less than a bachelor's degree. Low-skill jobs are those that only require a high school education, while high-skill jobs require at least a bachelor's degree.

Middle-skill occupations are an essential part of Missouri's workforce, accounting for four out of every 10 jobs. Meeting the continued demand for middle-skill occupations will be an important factor in maintaining a strong economy in the state. Middle-skill jobs can also offer good pay or career pathways with industry-recognized training and credentials that can be as short as a few months. This is important given that seven out of 10 Missourians, and Americans, do not have a bachelor's degree, so middle-skill jobs offer an opportunity for better pay and advancement. This report highlights Missouri's middle-skill jobs and provides details on several occupational groups where middle-skilled talents are in high demand.

MISSOURI'S MIDDLE-SKILL OCCUPATIONS

Middle-skill occupations have an average annual wage of \$41,800. This is less than the average annual wage of \$45,520 for all occupations in the state, but greater than the average annual wage of \$26,709 for low-skill occupations.

Middle-skill occupations constitute a large number of jobs in Missouri's labor market. In 2016, 41 percent of the workforce was employed in middle-skill occupations, compared to 35 percent employed in low-skill occupations and 24 percent employed in high-skill occupations. By 2026, the share of middle-skill employment is projected to drop slightly, to 40 percent, while the share of high-skill occupations is projected to increase slightly, to 25 percent. The share of low-skill occupations is projected to remain the same at 35 percent.

The middle-skill occupations with the highest individual employment are *Secretaries and Administrative Assistants*, followed by *Heavy and Tractor-Trailer Truck Drivers* and *Nursing Assistants*. These three occupations combined employed more than 171,000 workers in 2016.

Middle-skill occupations are projected to produce almost 132,000 annual job openings during the projection period of 2016 to 2026. This represents 36 percent of all annual job openings during the projection period, while high-skill occupations are projected to produce 18 percent of all job openings and low-skill occupations are projected to produce 45 percent of all total job openings.

Total openings are a combination of growth, exit, and transfer openings:

- Growth openings are the result of an occupation growing between the base year and the projected year.
- Exit openings occur when a worker leaves the workforce entirely, such as retirement.
- Transfer openings occur when a worker leaves their occupation for a different one.

MIDDLE-SKILLED JOBS



1,220,979

EMPLOYMENT



131,905

ANNUAL JOB OPENINGS 2016-26



41,800

AVERAGE WAGE



41%

OF MISSOURI JOBS REQUIRE SOME TRAINING AFTER HIGH SCHOOL BUT LESS THAN A BACHELOR'S DEGREE

MISSOURI'S MIDDLE-SKILL OCCUPATIONS BY INDUSTRY

Overall, middle-skill occupations make up 41 percent of total employment in Missouri. Some industries, however, have a much higher percentage of employment in middle-skill occupations. The *Mining* industry has the highest percentage of middle-skill employment, followed by the *Construction* industry.

Middle-Skill Employment Percent of Industry 2016



The *Manufacturing* industry has the highest total number of middle-skill employees, followed by the *Health Care and Social Assistance* sector. While *Construction* is the twelfth largest industry overall, it is the fifth largest in terms of middle-skill employment.

Total Middle-Skill Employment by Industry



177,335

MANUFACTURING



167,105

HEALTH CARE



106,559

GOVERNMENT



83,248

RETAIL TRADE










82,230

CONSTRUCTION

TOP MIDDLE-SKILL JOBS BY OPENINGS, GROWTH, & WAGES

The middle-skill occupations with the most total job openings during the projection period are *Secretaries and Administrative Assistants*, *Nursing Assistants*, and *Heavy and Tractor-Trailer Truck Drivers*. These three occupations combined are projected to have almost 18,500 job openings per year through 2026.

Top Middle-Skill Occupations by Annual Openings 2016-2026

Occupations	2016 Estimated Employment	2026 Projected Employment	Annual Openings Growth	Total	2017 Average Wage
Secretaries and Administrative Assistants 	81,826	76,558	-527	7,889	\$33,590
Nursing Assistants 	44,179	48,422	424	5,577	\$25,360
Heavy and Tractor-Trailer Truck Drivers 	45,607	47,103	150	5,027	\$43,480
Cooks	25,866	28,896	303	4,098	\$23,800
Bookkeeping, Accounting, and Auditing Clerks 	34,818	33,952	-87	3,695	\$37,800
First-Line Supervisors of Retail Sales Workers 	31,883	33,460	158	3,562	\$41,020
Maintenance and Repair Workers, General 	32,490	35,071	258	3,513	\$38,140
Supervisors of Food Preparation and Servers	22,141	24,282	214	3,469	\$30,750
Sales Representatives, Services	21,638	23,037	140	2,775	\$52,940
Sales Representatives, Wholesale and Manufacturing 	25,399	26,173	77	2,655	\$63,700

 Flame icon indicates occupations with high numbers of online job ad postings in 2018.

The middle-skill occupations that are projected to experience the fastest rates of growth are *Solar Photovoltaic Installers*, *Veterinary Assistants and Laboratory Animal Caretakers*, *Veterinary Technologist and Technicians*, and *Respiratory Therapists*. All of these occupations have growth rates of 27 percent or higher during the projection period, compared to 7.3 percent growth for all occupations in Missouri. Of the top 10 middle-skill occupations with the highest growth rates, six are in the *Health Care* field.

Middle-Skill Fastest Growing Occupations 2016-2026

Occupations	2016 Estimated Employment	2026 Projected Employment	2016-2026 Net Change	Percent Change	2017 Average Wage
Solar Photovoltaic Installers	139	198	59	42.5%	\$31,630
Veterinary Assistants and Laboratory Animal Caretakers	2,032	2,678	646	31.8%	\$24,680
Veterinary Technologists and Technicians	1,536	1,997	461	30.0%	\$34,840
Respiratory Therapists	2,741	3,496	755	27.5%	\$54,760
Physical Therapist Assistants	2,041	2,552	511	25.0%	\$53,330
Community Health Workers	1,410	1,740	330	23.4%	\$38,280
Occupational Therapy Assistants	1,024	1,254	230	22.5%	\$57,850
Massage Therapists	1,516	1,844	328	21.6%	\$37,950
Brokerage Clerks	1,902	2,297	395	20.8%	\$45,640
Numerically Controlled Machine Tool Programmers	329	397	68	20.7%	\$51,140

Occupations with net growth of less than 50 are omitted

While the average annual wage for all middle-skill occupations is \$41,800, some middle-skill occupations earn considerably more. The middle-skill occupation with the highest average annual wage is *Air Traffic Controllers*; followed by *Transportation, Storage, and Distribution Managers*; and *Power Distributors and Dispatchers*.

Top Middle-Skill Occupations by Average Wage

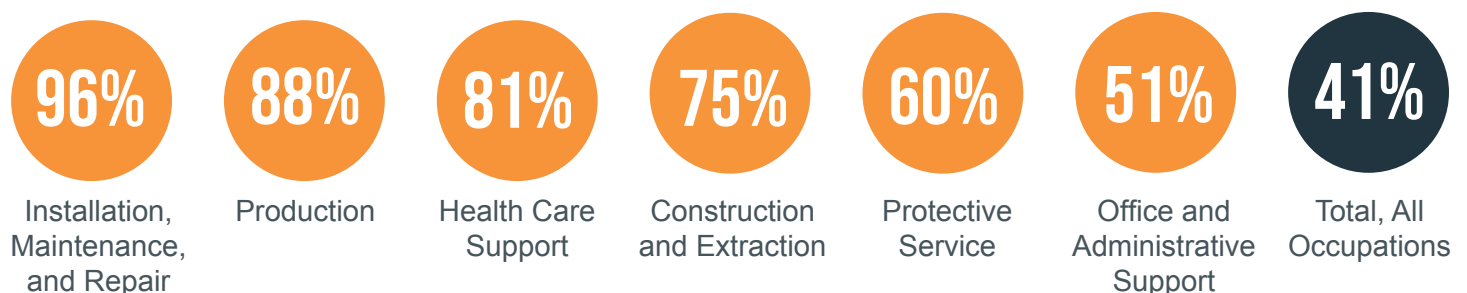
Occupations	2016 Estimated Employment	2026 Projected Employment	Annual Openings Growth	Total	2017 Average Wage
Air Traffic Controllers	245	251	1	23	\$102,570
Transportation, Storage, and Distribution Managers	1,884	1,994	11	156	\$96,580
Power Distributors and Dispatchers	200	191	-1	16	\$89,620
Commercial Pilots	608	641	3	61	\$85,060
Radiation Therapists	367	404	4	22	\$77,680
Elevator Installers and Repairers	449	514	7	62	\$77,200
First-Line Supervisors of Police and Detectives	1,812	1,922	11	121	\$76,390
Electrical and Electronics Repairers, Powerhouse, etc.	408	399	-1	34	\$75,880
Real Estate Brokers	1,848	1,974	13	185	\$74,730
Power Plant Operators	1,000	988	-1	84	\$74,430

Occupations with less than 10 total annual openings are omitted

MIDDLE-SKILL EMPLOYMENT BY MAJOR OCCUPATION GROUP

While all major occupation groups have middle-skill employment, some major occupation groups have higher percentages of middle-skill employment than others. The *Installation, Maintenance, and Repair* occupation group has the highest percentage of middle-skill employment, followed by *Production*. Six major occupation groups have middle-skill employment percentages that are higher than the state average of 41 percent. Some occupation groups with above average middle-skill employment percentages such as *Health Care Support* or *Production* are heavily concentrated in certain industries, such as the *Health Care* or *Manufacturing* industries, respectively. There are exceptions to this, such as *Installation, Maintenance, and Repair* or *Office and Administrative Support* occupations, which are more evenly distributed among a variety of industries.

Occupation Groups With Above Average Percent of Middle-Skill Jobs



INSTALLATION, MAINTENANCE, AND REPAIR OCCUPATIONS

The *Installation, Maintenance, and Repair* major occupation group has 96 percent of its employment in middle-skill occupations. The top three occupations with the most projected total openings in this group are *General Maintenance and Repair Workers*; *Automotive Service Technicians and Mechanics*; and *First-Line Supervisors of Mechanics, Installers, and Repairers*. These three occupations combined are projected to have over 6,000 total openings each year through 2026.

Top Middle-Skill Installation, Maintenance, and Repair Occupations by Total Openings

Occupations	2016 Estimated Employment	2026 Projected Employment	Annual Openings Growth	2017 Average Wage
Maintenance and Repair Workers, General	32,490	35,071	258	3,513 \$38,140
Automotive Service Technicians and Mechanics	17,888	18,673	79	1,759 \$41,900
First-Line Supervisors of Mechanics, Installers, & Repairers	9,490	9,985	50	867 \$60,630
Heating, AC, and Refrigeration Mechanics and Installers	6,205	7,269	106	744 \$46,930
Bus and Truck Mechanics and Diesel Engine Specialists	5,512	5,979	47	551 \$43,860
Telecommunications Equipment Installers and Repairers	5,661	5,257	-40	527 \$47,000
Industrial Machinery Mechanics	4,144	4,576	43	416 \$54,310
Automotive Body and Related Repairers	3,729	3,927	20	380 \$46,170
Maintenance Workers, Machinery	3,279	3,531	25	367 \$46,740
Mobile Heavy Equipment Mechanics, Except Engines	2,764	2,981	22	292 \$51,040

Installation, Maintenance and Repair occupations are found in many industries, with *Retail Trade* having the highest employment at 16 percent. The relatively even distribution of employment across industries of this major occupational group shows that *Installation, Maintenance and Repair* occupations are in demand in a wide range of organizations.

Many of the technology skills that are important for *Installation, Maintenance, and Repair* occupations are considered “hot technology” according to the Employment and Training Administration’s O*NET, meaning that they are technology skills that are frequently included in employer job postings. For example, being skilled in enterprise resource planning (ERP) software is important for seven of the top 10 middle-skill *Installation, Maintenance, and Repair* occupations with the most annual openings.

Certifications can be useful when pursuing an *Installation, Maintenance and Repair* occupation. Some certifications, such as an *Automotive Service Excellence Certification* are more specialized to a narrow range of jobs, while other certifications, such as a commercial driver’s license could be applicable to a wide range of jobs.

Top Skills

Baseline	Specialized
Preventive Maintenance	Repair
Troubleshooting	HVAC
Physical Abilities	Plumbing
Communication Skills	Customer Service
Computer Literacy	Predictive Maintenance

Labor Insight Burning Glass June 1, 2017 - May 31, 2019

Top Certifications

Automotive Service Excellence Certification
Environmental Protection Agency Certification
EPA CFC/HCFC Certification
CDL Class A
Security Clearance

Labor Insight Burning Glass June 1, 2017 - May 31, 2019

MAJOR OCCUPATION GROUP

PRODUCTION OCCUPATIONS

The *Production* major occupation group has 88 percent of its employment in middle-skill occupations. The top three occupations with the most projected total openings in this major occupation group are *Team Assemblers*; *First-Line Supervisors of Production and Operating Workers*; and *Welders, Cutters, Solderers, and Brazers*. These three occupations combined are projected to have more than 4,500 total openings each year through 2026.

Top Middle-Skill Production Occupations by Total Openings

	2016 Estimated Employment	2026 Projected Employment	Annual Openings Growth	2017 Average Wage	
Occupations			Total		
Team Assemblers	23,924	21,052	-287	2,302	N/A
First-Line Supervisors of Production and Operating Workers	13,061	13,386	33	1,300	\$57,630
Welders, Cutters, Solderers, and Brazers	8,765	9,197	43	984	\$38,730
Inspectors, Testers, Sorters, Samplers, and Weighers	9,336	8,374	-96	950	\$40,330
Packaging and Filling Machine Operators and Tenders	7,461	8,037	58	938	\$32,670
Food Batchmakers	5,753	6,043	29	846	\$33,600
Production Workers, All Other	6,551	6,802	25	775	\$31,610
Machinists	6,624	6,816	19	690	\$44,660
Printing Press Operators	5,954	5,400	-55	535	\$40,500
Computer-Controlled Machine Tool Operators	4,576	4,775	20	477	\$39,790

Seventy-one percent of *Production* occupations are found in *Manufacturing*. This strong link between the *Manufacturing* sector and *Production* occupations is evident in the fact that knowledge of production and processing is important for nine of the top 10 middle-skill *Production* occupations.

Computer aided design (CAD) software and/or enterprise resource planning (ERP) software are important technology skills for nine of the top 10 middle-skill *Production* occupations. These are also considered “hot technology” skills, according to O*NET. As manufacturing becomes more technologically advanced, such as the application of 3D printing, it is important for production workers to continue to learn the skills necessary to keep up in a changing manufacturing environment.

In addition to these more specialized technology skills, basic computer skills are also becoming increasingly necessary across a range of occupations, with skills in office suite software (such as Microsoft Office), being important for the top 10 middle-skill *Production* occupations. With spreadsheet software (such as Microsoft Excel) being important for nine of the top 10 *Production* occupations, it is clear that acquiring basic computer skills is becoming necessary to remain competitive in a wide range of occupations, not just office jobs.

Top Skills

Baseline	Specialized
Physical Abilities	Packaging
Communication Skills	Repair
Detail-Oriented	Basic Mathematics
Work Area Maintenance	Scheduling
Computer Literacy	Machinery

Labor Insight Burning Glass June 1, 2017 - May 31, 2019

Top Certifications

Forklift Operator Certification
CDL Class A
ServSafe
Welding Certification
Food Handler Certification

Labor Insight Burning Glass June 1, 2017 - May 31, 2019

MAJOR OCCUPATION GROUP

HEALTH CARE SUPPORT

The *Health Care Support* major occupation group has 81 percent of its employment in middle-skill occupations. The top three middle-skill *Health Care Support* occupations with the most total openings are *Nursing Assistants*, *Medical Assistants*, and *Dental Assistants*. These three occupations combined are projected to have more than 7,500 annual job openings through 2026.

Top Middle-Skill Health Care Support Occupations by Total Openings

Occupations	2016 Estimated Employment	2026 Projected Employment	Annual Openings Growth	2017 Average Wage
Nursing Assistants	44,179	48,422	424	5,577 \$25,360
Medical Assistants	9,141	10,717	158	1,203 \$31,370
Dental Assistants	5,529	6,322	79	721 \$36,900
Veterinary Assistants and Laboratory Animal Caretakers	2,032	2,678	65	421 \$24,680
Physical Therapist Assistants	2,041	2,552	51	321 \$53,330
Phlebotomists	1,947	2,233	29	240 \$31,630
Massage Therapists	1,516	1,844	33	203 \$37,950
Medical Equipment Preparers	1,323	1,489	17	188 \$32,050
Occupational Therapy Assistants	1,024	1,254	23	162 \$57,850
Health Care Support Workers, All Other	876	1,044	17	134 \$37,670

Health Care Support middle-skill occupations can often lead to high-paying and high-skill job opportunities. For example, *Nursing Assistants* could combine the skills and experiences gained in the occupation with further education, which could lead to employment as *Registered Nurses*.

Eighty-two percent of *Health Care Support* occupations are found in the *Health Care and Social Assistance* industry. Some of the skills and knowledge that are typically required of *Health Care Support* occupations can be found in other occupations across a wide range of industries. For example, the ability to provide customer and personal service is important for all 10 of the top middle-skill *Health Care Support* occupations with the most total openings, but it is also important for many other occupations, especially those that require direct contact with customers.

Certifications can be of great importance when pursuing a *Health Care Support* occupation. In fact, 58 percent of online job postings for middle-skill *Health Care Support* occupations between June 2017 and May 2019 mentioned certifications. Many of these certifications directly correspond to a particular occupation, such as *Certified Nursing Assistant*, and *Certified Medical Assistant*. Some certifications, such as First Aid CPR AED, may be valuable across a wide range of *Health Care* occupations.

Top Skills

Baseline	Specialized
Communication Skills	Patient Care
Physical Abilities	Vital Signs Measurement
Teamwork / Collaboration	Scheduling
Computer Literacy	Phlebotomy
Organizational Skills	CPR

Labor Insight Burning Glass June 1, 2017 - May 31, 2019

Top Certifications

Certified Nursing Assistant
Certified Medical Assistant
First Aid CPR AED
Basic Cardiac Life Support Certification
Basic Life Saving (BLS)

Labor Insight Burning Glass June 1, 2017 - May 31, 2019

MAJOR OCCUPATION GROUP

CONSTRUCTION OCCUPATIONS

The *Construction and Extraction* major occupation group has 75 percent of its employment in middle-skill occupations. The top three middle-skill *Construction* occupations with the most total openings are *Carpenters*; *Electricians*; and *Plumbers, Pipefitters, and Steamfitters*. These three occupations combined are projected to have nearly 4,500 annual job openings through 2026.

Top Middle-Skill Construction Occupations by Total Openings

Occupations	2016 Estimated Employment	2026 Projected Employment	Annual Openings Growth	2017 Average Wage
Carpenters	19,545	21,733	219	2,076 \$54,370
Electricians	11,584	12,766	118	1,447 \$61,630
Plumbers, Pipefitters, and Steamfitters	7,438	8,678	124	955 \$63,500
Supervisors of Construction Trades and Extraction Workers	8,112	9,138	103	923 \$71,550
Operating Engineers and Construction Equipment Operators	6,768	7,383	62	828 \$54,140
Painters, Construction and Maintenance	6,745	7,264	52	640 \$50,240
Highway Maintenance Workers	5,586	5,928	34	608 \$35,040
Cement Masons and Concrete Finishers	4,759	5,330	57	591 \$53,000
Sheet Metal Workers	4,266	4,788	52	519 \$63,400
Roofers	2,703	3,055	35	313 \$46,110

Building and construction knowledge is important for all 10 of the middle-skill *Construction* occupations with the most total openings. However, other knowledge requirements are less obvious such as customer and personal service skills, which are important for seven of the top 10 middle-skill *Construction* occupations; or administration and management knowledge, which are important for seven of the top 10 occupations. As many construction workers are self-employed, these skills can be a great advantage in the marketplace.

Many occupations that typically require apprenticeship programs are *Construction* occupations. Of the top 10 middle-skill *Construction* occupations with the most total openings, four typically require Registered Apprenticeship programs. Apprenticeships offer employees the opportunity to earn money and receive on-the-job training while working toward a nationally recognized credential.

Apprenticeship Occupations

Occupations	Average Wage	Annual Openings
Carpenters	\$54,370	2,076
Electricians	\$61,630	1,447
Plumbers, Pipefitters, & Steamfitters	\$63,500	955
Sheet Metal Workers	\$63,400	519
Brickmasons & Blockmasons	\$63,710	233
Structural Iron and Steel Workers	\$57,020	177
Glaziers	\$52,320	144
Millwrights	\$58,140	86
Elevator Installers & Repairers	\$77,200	62
Stonemasons	\$46,060	43
Reinforcing Iron & Rebar Workers	\$65,980	41
Insulation Workers, Mechanical	\$58,470	39
Musical Instrument Repairers & Tuners	\$39,630	20
Boilermakers	\$55,370	N/A
Terrazzo Workers & Finishers	N/A	N/A

Top Skills

Baseline	Specialized
Communication Skills	Repair
Troubleshooting	Hand Tools
Physical Abilities	Electrical Work
Computer Literacy	Painting
Problem Solving	Carpentry

Labor Insight Burning Glass June 1, 2017 - May 31, 2019

CONCLUSION

Missouri's middle-skill occupations play a very important part in the economy and are projected to continue to make up a large portion of the workforce through 2026. Middle-skill jobs that typically require one year or less of training can be good entry points for workers into middle-skill occupations. For jobs that require more training or education, Missouri's community colleges and apprenticeship programs serve a vital role in educating and training the workforce to meet the demands of these occupations.

Several studies have shown that as baby boomers retire, demand for replacement workers in middle-skill occupations will remain high even in occupations that are projected to have stagnant or negative growth.¹ In Missouri, some middle-skill occupations are not growing, but still have a high need for replacement workers, such as *Secretaries and Administrative Assistants*. Preparing the workforce with the skills necessary to fill middle-skill replacement openings will be a continuing need to ensure a healthy state economy.

DEFINING MIDDLE-SKILL OCCUPATIONS

The definition of a middle-skill job, used often to describe occupations that require some training after high school but less than a bachelor's degree, is straightforward in concept yet more difficult in practice as research organizations differ in how those jobs are defined. Some use standard definitions from the U.S. Department of Labor, while others use wages as an indicator or even the type of work, classifying "routine" jobs as middle-skilled.²

For example, in a study by the Brookings Institution, wages were used to define middle-skill occupations.¹ This approach has merit, as often middle-skilled jobs are associated with middle-wage opportunities. The difficulty with using wages at a detailed occupational level, however, is that some lower paid jobs can typically require higher training levels. Counselors and other governmental workers, for example, often need bachelor's degrees or higher but receive lower pay which would categorize the job as middle-skilled.

The National Skills Coalition (NSC) uses a similar approach to this report except that instead of using the typical, minimum education level needed for a job the researchers used the actual educational attainment of job holders based on the American Community Survey (ACS).³ This method has the advantage of taking into consideration the competitive education environment workers face when applying for jobs. While a certain occupation may only require a high school diploma as a minimum, if a large portion of workers have some college training then a high school applicant is at a competitive disadvantage when applying for those jobs. The NSC estimated that 48 percent of Missouri's jobs (53% U.S.) were middle-skill in 2015 using this approach.

The downside of this method is that the broad ACS category of job holders with "some college but no degree" is very large yet provides no details on the actual skills a person has obtained after high school. Using this criteria, for example, finds jobs such as *Retail Salespersons* falling into the middle-skill category although all other data point to this as a job requiring only entry-level skills.

Middle-skill research from several Federal Reserve Banks (FRB) in 2015⁴ and 2019⁵ focused on the nation's largest metropolitan areas and defined "opportunity occupations" as ones considered accessible to someone without a bachelor's degree but that pays at least the national median wage when adjusted for local prices. In addition to wages from the BLS Occupational Employment Statistics program, this study looked at BLS, O*NET, and Burning Glass online job ad information to identify middle-skilled occupations, placing the average at 22 percent of employment.

Jobs for the Future (JFF) and the Lumina Foundation defined middle-skill occupations as those that pay at least \$15 an hour and required skills typically attained through some education beyond high school but not a four-year college degree.⁶ Using Burning Glass resumé data spanning the last 20 years and BLS Occupational Employment Statistics (OES) wage data, the report further divided middle-skill occupations into "lifetime jobs", "springboard jobs", and "static jobs" based on average wage and career advancement potential of occupations. This report is innovative in its use of resumé data to determine outcomes of employment in occupations and not just viewing entry into an occupation as an "end-point." The report only examined middle-skill occupations within seven major occupational groups. While it provides a very in-depth analysis of a large number of middle-skill occupations, it is not a comprehensive analysis of all middle-skill occupations.

There are multiple, reasonable ways to define middle-skill jobs that all have advantages and drawbacks. Despite these differences, and the complexities that location or upskilling bring, most research points to the same groupings of occupations (construction, maintenance and repair, production, health care) that vary in demand but offer opportunities for good paying careers that are critical to the economy. This is especially true for middle-skill jobs that rely on advanced technical training in fields such as health care, computer systems, construction trades, or machinery. The broader truth is that these different approaches show that the educational bar for jobs continues to rise and that middle-skill talents will need to evolve with this trend.

METHODOLOGY

There is no standard definition of middle-skill occupations. A common description is jobs that are accessible to a person with some training after high school, but require less than a bachelor's degree. However, that definition exists in a U.S. labor market where job requirements vary by city, employers "upskill" jobs with plentiful labor, and the increasing educational level of workers raises the competitive bar for all job seekers. These complexities result in a wide range of figures surrounding middle-skilled occupations, with recent research showing estimates from 22 to 53 percent of the nation's jobs falling into this category.

The methodology used by the Missouri Economic Research and Information Center (MERIC) combines the Bureau of Labor Statistics' (BLS) typical requirement categories for entry into an occupation with the Employment and Training Administration's O*NET Job Zone classifications to separate jobs into either low, middle, or high-skill occupations.

The primary source for assigning occupational skill levels is the Bureau of Labor Statistics' (BLS) typical education, experience and training requirement definitions. BLS classifies each occupation based on the typical education required to enter an occupation, the work experience in a related job required to enter into an occupation, and the typical on-the-job training required to attain competency in the skills needed in an occupation.⁷

The second source used by MERIC for assigning skill levels is the O*NET Job Zones. The Job Zones indicate the level of vocational preparation needed for a particular occupation. Job Zones are classified on a 1-5 scale, with Job Zone 1 needing little or no preparation for entry into an occupation, and Job Zone 5 needing extensive preparation for entry into an occupation.

High-skill occupations are defined solely as having a BLS typical education classification of a bachelor's degree or higher. Low-skill occupations must have a BLS typical education classification of high school or less; no experience necessary; job training typically less than one-month (short-term); and an O*NET Job Zone of 2 or less.

Once high-skill and low-skill occupations are categorized, all remaining jobs are defined as middle-skill. Most middle-skill occupations require on-the-job training of a year or more, including apprenticeships, and have Job Zones of 2 or 3. A Job Zone of 3 indicates that an occupation needs medium preparation. Middle-skill occupations at the higher end of the category require postsecondary education such as an associate degree and/or some work experience in a related occupation.

This same methodology is also used by MERIC to define Now, Next, and Later occupations. Now, Next, and Later designations are used to quickly identify the general amount of time it would take to acquire the skills and education that would typically be necessary for a particular occupation. Next occupations correspond to middle-skill occupations, while Now and Later occupations correspond to low-skill and high-skill occupations, respectively.

MISSOURI MIDDLE-SKILLS REPORT

DATA SOURCES

*Data Sources: Bureau of Labor Statistics (BLS) Employment Projections program data was used to define education, experience, and job training requirements. BLS Occupational Employment Statistics (OES) program data was used for estimated base year employment and wages. The Employment and Training Administration's O*NET Job Zones were used to define skill levels of occupations. O*NET occupation summaries were used to describe skills and knowledge of occupations. Occupational projections data was used to provide projected employment and openings and are developed by the Missouri Economic Research and Information Center (MERIC). Labor Insight Burning Glass was used to describe the top skills, certifications, and employers of occupations and to identify occupations with high numbers of job postings in 2018. Middle-skill employment in major occupation groups was based on publishable data.*

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¹ Holzer, H. (April 2015). "Job Market Polarization and U.S. Worker Skills: A Tale of Two Middles". The Brookings Institution. Retrieved 03 May 2017 from https://www.brookings.edu/wp-content/uploads/2016/06/polarization_jobs_policy_holzer.pdf

Autor, D and Dorn, D. (2009). "This Job is Getting Old: Measuring Job Opportunity Using Occupational Age Structure." American Economic Review. Retrieved 03 May 2017 from <https://economics.mit.edu/files/11629>

Modestino, A. (November 2010). "Mismatch in the Labor Market: Measuring the Supply and Demand for Skilled Labor in New England". Federal Reserve Bank of Boston. Retrieved 03 May 2017 from <https://www.bostonfed.org/publications/new-england-public-policy-center-research-report/2010/mismatch-in-the-labor-market-measuring-the-supply-of-and-demand-for-skilled-labor-in-new-england.aspx>

² Chermukhin, A. (May 2014). "Middle-Skill Jobs Lost in U.S Labor Market Polarization". Federal Reserve Bank of Dallas. Retrieved 03 May 2017 from <http://www.dallasfed.org/assets/documents/research/eclett/2014/el1405.pdf>

³ "United States' Forgotten Middle." National Skills Coalition (March 2017). Retrieved 18 May 2017 from <http://www.nationalskillscoalition.org/resources/publications/2017-middle-skills-fact-sheets/file/United-States-MiddleSkills.pdf>

⁴ Wardrip, K., Fee, K., Nelson, L., Andreason, S. (September 2015). "Identifying Opportunity Occupations in the Nation's Largest Metropolitan Economies". The Federal Reserve Banks of Philadelphia, Cleveland, and Atlanta. Retrieved 18 May 2017 from <https://www.clevelandfed.org/newsroom-and-events/publications/special-reports/sr-20150909-identifying-opportunity-occupations.aspx>

⁵ Fee, K., Wardrip, K., Nelson, L. (April 2019). "Opportunity Occupations Revisited". The Federal Reserve Banks of Philadelphia and Cleveland. Retrieved 22 July 2019 from https://www.philadelphiafed.org/-/media/community-development/publications/special-reports/identifying_opportunity_occupations/opportunity_occupations_revisited.pdf?la=en

⁶ Lamback, S., Gerwin, C, Restuccia, D. (June 2018). "When Is a Job Just a Job – and When Can It Launch a Career?". JFF. Retrieved 19 July 2019 from <https://jfforg-prod-prime.s3.amazonaws.com/media/documents/ResumeDataBook6.pdf>

⁷ More information about the education, experience, and training data definitions can be found at https://www.bls.gov/emp/ep_nem_definitions.htm#education.

More information about the methodology used by BLS to determine these categories can be found at https://www.bls.gov/emp/ep_education_tech.htm. Job zones information available at <https://www.onetonline.org/help/online/zones>

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